

Primary Care Cures

Episode #20: Jeroen Tas

- Ron Barshop: You know, most problems in healthcare are fixed already. Primary care is already cured on the fringes. Reversing burnout, physician shortages, bad business models, forced buyouts, factory medicine, high deductible insurance that squeezes the docs and is totally inaccessible to most of the employees. The big squeeze is always on for docs. It's the acceleration of cost and the deceleration of reimbursements.
- Ron Barshop: I want you to meet those on this show that are making a difference with host Ron Barshop of Beacon Clinics, that's me.
- Ron Barshop: Welcome to the show. We spend more in America on healthcare alone than all the five national GDPs. France's GDP is about the same as what we spend here just on healthcare.
- Ron Barshop: This is US healthcare with the top capita per spend by double. So we are double Switzerland, which is in second place, but we're in the lowest percentile in outcomes of our peers.
- Ron Barshop: Infant mortality we're last. We have falling mortality for the last three years now. So we're rated number 28 of 32 peers. This is US healthcare. Only two countries can advertise drugs on TV, New Zealand is the other one. No category has beat the down more consistently than big healthcare, which outspends the next four lobbies combined, which is Wall Street, Silicon Valley Defense and Big Oil.
- Ron Barshop: In fact, we spend more than 25X of our brand new NRA combined with US healthcare. Medical errors are 10,000 a day and kill 200,000 to 420,000 yearly. The coroner's don't record the errors as a cause of death, so there's a huge swing there. This number is more than triple the opioids deaths which turn the headlines every day but medical errors don't have any headlines.
- Ron Barshop: Adverse drug deaths is number four as a leading killer. So you're safer in your car than in a hospital due to these factors and hospital acquired infections.

- Ron Barshop: 80% of the best 50 fundraisers are hospitals in America. This is US healthcare. The primary care shortage today estimates a rise every year. They were 108,000 last year, they're 120,000 estimated this year, six years out because a third of the doctors are over 57 years old, and we're adding 10,000 Medicare enrollees every day for the next six years. So today we expect 120,000 docs shy of what we need due to this demographic silver tsunami.
- Ron Barshop: There are rural deserts for care that are countrywide here in Texas where I live, we have 20 counties with zero doctors. Over half our doctors are burned out. Suicide is double the rate of veterans. And 70% of physicians tell their children not to become doctors. This is US healthcare.
- Ron Barshop: One in six Americans carry medical debt. Millennials are disproportionately predisposed for medical debt. And 65% of all bankruptcies in America are medical bankruptcies, which is double the number of all the other causes combined for bankruptcy. And 70% of those people have insurance.
- Ron Barshop: Over half Americans cannot pull together \$1,000 so they don't have the liquidity to meet their deductible. We've had 20 years of wage declination, 5% of the reason is due to healthcare costs.
- Ron Barshop: 50% of millennial's lifetime income will be going to healthcare in the next 50 years. This is US healthcare. Funding for Medicare, Medicaid are drying up in seven and a half years and there are very serious people running for president of the United States who want to expand that for everybody.
- Ron Barshop: Today we're going to meet someone who has an exceptional overview of all of this, and we're going to talk about some of this. Jeroen Tas is the founder of MphasiS which has now 22,000 employees and is seventh in India for their tech list based in Bangalore.
- Ron Barshop: He went on to help Citigroup start their internet banking in the 1990s and is currently the Chief Innovation and Strategy Officer for Royal Philips, which is a 74,000 employee, \$20 billion revenue company.
- Ron Barshop: You all know them from their Norelco shavers and their Sonic toothbrushes, but they're also global leaders in imaging, lighting, cardio informatics. In the healthcare world they're clearly thought leaders.
- Ron Barshop: The CEO and Jeroen are considered global thought leaders for healthcare. Their goal is to touch billions of lives at Philips. So we're very glad to have you on the show Jeroen.

Jeroen Tas: Thank you Ron. My pleasure. These were quite some sobering facts that you listed there.

Ron Barshop: Well, what I'm hoping today to do is to kind of close the gap between what's going on, on the ground and what Philips is doing to take care of that, and maybe some of your own opinions on what we can do to cure some of these ills that are in our system.

Ron Barshop: So let's just talk about what progress we've made in the last few years offering 24/7 integrative care for chronic patients like your daughter Kim who you discovered has juvenile diabetes recently.

Jeroen Tas: Yeah. Well not recently. She's actually 29 now and she was diagnosed when she was 12, and already at that time I was quite shocked about the state of technology, but even more shocked about the lack of care coordination because I had assumed that care would be organized around patient needs, patient security, patient risks, and it would look more holistically at patients.

Jeroen Tas: You know type one diabetes is as good an example as other chronic diseases where in this case it's a disease that you're genetically predisposed to. So, something will trigger it and then you'll have it for the rest of your life.

Jeroen Tas: But it leads to many complications, and many of them are well known, eyesight, kidney failure, skin problems. But another aspect of this is hugely underestimated it's the mental aspects of the disease especially for young women that deal with anxiety around the 100, 200 of decisions that they have to make every day in relation to their health.

Jeroen Tas: Officially we all know behavior is a major aspect of guiding patients to watch better control of their chronic disease. And if I look back at the state of where the industry was 17 years ago and where we are today, I think the progress has been there but definitely not to the point that where I believe it should be.

Jeroen Tas: I think a lot of it has to do with the incentives in the system. If we have a fee for a service system where basically carers is reimbursed for consults, tests, a procedure, a hospital bed, that's what people tend to optimize. If it's a system that's incented towards outcomes, then that's what people tend to optimize.

Jeroen Tas: We've seen cases where 24/7 chronic care, basically being in touch with your patients, using digital technology to keep touch on your patient and proactively reach out is just not fit with a clear reimbursement scope. Or it's kind of hard to support the system. It's hard to support a system where

you're essentially not base lining outcomes and give incentives to improve on those outcomes.

Jeroen Tas: You mentioned some numbers, some hospital required infections on the cost of healthcare. A lot of that cost is associated with a system that is clearly not focusing on those outcomes.

Jeroen Tas: Now, the good news, there are a couple of organizations in the US that are making strides in the right direction. CMS is starting to do it. I think Medicare advantage holds a whole lot of promise.

Jeroen Tas: Organization like Kaiser or Intermountain are visionary leaders that basically say, hey, we understand that the reimbursement works its way, but we're going to create our own health plans or start working with payers or CMS to come with a model that actually don't bend the curve and will ultimately create better outcomes for patients.

Ron Barshop: Well let's talk about that for a second, Jeroen. If you were to look at the future direction of the healthcare in America, it looks like value based care which is paying a per patient fee instead of a per procedure fee to keep heads out of beds, is the future.

Ron Barshop: But the problem is that half of the patients are non compliant with seeing a specialist. So they're referred out and they don't go. Then well over 90% of patients aren't even taking their medications the way they're supposed to.

Ron Barshop: So, in value based care I'm a physician and I'm trying to get the patient to dance the tango with me and I don't have a dance partner, value based care doesn't seem to work.

Jeroen Tas: No. Of course, that's a right observation. And maybe the jump is too big from fee for service to full value based care. We all know there are interim steps you can take.

Jeroen Tas: But I think there's another aspect to this. If you say hey, if I take joint responsibility with the patients on outcomes, then your role becomes different. If you look at the role of primary care physicians it's basically you come there when you have an issue and they will refer you to specialist care when they see there is a need to do that.

Jeroen Tas: There might be another model where you say hey, maybe the primary care physician takes more ownership of the health of the population. A large part of that is not purely clinical. It is social and behavioral as well.

Ron Barshop: Well I'm looking at a beautiful model then. I've watched all your talks and I could understand it. My debt is just non-existent. But you have some

wonderful visions of the future where Kim is in the center of a circle of care that has a stress manager and activities, an internist, a nutritionist, ophthalmologist, psychologist, primary care doctor, insulin care, blood glucose monitoring and nutrition and stress, all circled around Kim's day-to-day life so that she has less decisions to make and less stress in her life. She has really, she has this center of attention.

Ron Barshop: So your vision of the future looks like an AI based vision that's supporting the PCP and helping her make the right decisions in her daily life. Is that where we're going for Kim?

Jeroen Tas: Yeah. I think that's where we want to go and that doesn't mean that all these people are all day long supporting her. No, these are multidisciplinary teams that work with patients like her.

Jeroen Tas: Of course, if you're no longer constrained to the location, then of course you can do this at scale. You can do this in a state or in a region or in the Netherlands and have a service like this for all young women with type one diabetes or older people with type two diabetes and CLPD.

Jeroen Tas: So, you basically start structuring your care around the needs of patients, which is not a strange concept if you think about it. There you want to optimize the care pathway taking into account behavioral, social economic background because it's not purely clinical.

Jeroen Tas: Obviously if you want to do this at scale, you have to automate and AI can play a big role in keep tracking, creating almost like closed-loop pathways for patients.

Jeroen Tas: There will be of course human interventions because ultimately a doctor or a nurse needs to make the judgment and needs to intervene at the right time. But there's no reason why we cannot believe that an AI enabled system can tee up the need for interventions based on the a cure it gleaned from many parameters, which maybe a continuous glucose meter, a connected insulin pen or pump, a Fitbit or other ways to track activity and behavioral aspects.

Jeroen Tas: It all comes together. It's constantly in the background interpreted. When the AI spots a need for an intervention, it will give the multidisciplinary team an alert and they can then basically decide on the intervention which may mean, hey, let's talk to Kim, let's work with her on maybe a new insulin regiment to help her get back into her sweet spot.

Jeroen Tas: While we talk to her we can glean some more information about potential anxiety and stress because that will further exacerbate the condition.

Ron Barshop: I'm almost looking at like a human dashboard that we have ... Each will have a dashboard that shows a proclivity to take a fall, a proclivity to not take our meds, a proclivity to have stress over diabetes. They will actually have an AI monitored checklist that some system will manage for us. Is that existing today or is that coming our way or where are we with that?

Jeroen Tas: I think that's where we're building up to. So, our vision of the future is indeed a highly personalized perspective of the patient to what we call the digital twin. Which, basically means that I'm collecting over time a lot of longitudinal patient information of Kim. And I start seeing patterns there, and I can compare these patterns with patients like her.

Jeroen Tas: From there we can glean what the best protocols or interventions might be. Again, these may not be all clinical. It can be that my wife and I are part of Kim's care team and we may be prompted to reach out or we may have valuable input to her situation that can help in the right decision making.

Jeroen Tas: It applies to my daughter but it could equally apply to your mother or dad living alone with three chronic diseases of which one mental, five or six medications that I should actually point out are not being taken on time.

Jeroen Tas: So, there are many ways to help people create a routine around their health. There are many ways to guide people on adhering to their medication, to medication compliance devices, or if you talk to some people they're even looking at medication that will broadcast essentially when it's taken to connect that bills.

Jeroen Tas: But cameras can help as well. We're investing a lot of research into computer vision.

Ron Barshop: There is ... My 84 year old mother is on her medications, doing a great job and great health. We worry about her taking a fall. And ICU deaths report the top three is a fall. You're going to take a fall, you're going to break your hip, you're going to develop pneumonia and that's the end of your life. Everything degrades from there.

Ron Barshop: What in the Philip's world view, in your world view do you see as the dashboard looking like for my mom so that we can make sure she's doing all the right things to prevent a fall, as an example?

Jeroen Tas: Yeah. For instance, we have a product called Lifeline, which is a pendant with, I always say it's like the smallest mobile phone which has a big button on it. But it will detect a fall and it will automatically dial out to our medical response center.

Jeroen Tas: So, we will automatically check whether she's still conscious, whether she can get up and if not we'll arrange care for her. But we do more than that. We actually can identify increased risk of falls by changing patterns.

Jeroen Tas: So, we can, if your mother is getting up more slowly, doesn't move that much, her GAID is changing. These can all be indicators that she has a heightened risk of fall. So, that could be then an alert that can trigger an intervention.

Jeroen Tas: We also use computer vision. So basically closed-loop cameras that can look at not just falls, detect falls. But it can also see let's say your mother getting out of bed six times a night or not getting up in the morning at all.

Jeroen Tas: We can glean fatal signs from cameras. Now you don't need to stream these cameras because we can put an AI chip next to the camera and only send out alerts if things are out of the ordinary so that people don't feel they're privacy intruded.

Jeroen Tas: But these are technologies that are mature enough to be deployed. Our Lifeline technology is highly mature and hundreds and thousands of elderly people are wearing it to detect falls and respond immediately if a fall is detected.

Ron Barshop: So Jeroen my mother I think if I were to say, "We're going to set up some cameras in your bedroom and living room and bathroom and we're going to have motion detectors to make sure that everything is all right for you but no humans are going to see it, it's all going to be on the computer system somewhere," she's going to really push back on the privacy issue that you brought up. What do we do to get past that?

Jeroen Tas: I think it's a personal choice. I don't think we should force anybody to do this. But we've seen that having the fall detection, the two way video capabilities, the opportunity to speak to a care professional at any time, give people a sense of control over their own health, the ability to live at home and get back their dignity. It may not be for everybody, and it may be in different flavors.

Jeroen Tas: But I generally believe that technology can really augment people that require that oversight and allow them to live at home and make the best of their life.

Ron Barshop: In one of your talks, Jeroen, you talked about an associate who has Crohn's disease, and it's managed now, but it wasn't for a long time. Inflammation really triggers so many different diseases.

Ron Barshop: At that part in your talk you talked about we are going to soon be able to get to the root cause of these inflammations that are the trigger for so many diseases whether it's cancer or neurological diseases or gut diseases like Crohn's.

Ron Barshop: What is going on with CRISPR and with DNA, the future of DNA so that we maybe can even eliminate the disease when we discover it before it becomes chronic.

Jeroen Tas: Yeah. There's a lot of work going on, and some of it will take years to actually reach the regular care processes. So, year number one, we see more and more from images. So, CT scan, MR scan, and we use artificial intelligence to go deeper and deeper on what we can glean from that information.

Jeroen Tas: We now have digital pathology where we can glean information from bio markers and cell tissue and of course genomics. Genomics is highly relevant because it will give our predisposition to acquired diseases. So you have genetic bio markers that can be highly relevant also for preventative protocols.

Jeroen Tas: But there are a whole bunch of other things where a lot of research is ongoing. So, proteomics where companies are looking at the proteins that basically are an expression of your genetic code and detect diseases looking at 500, 600 different proteins at the same time looking for patterns, and actually detecting disease there even before it's manifested or you start showing the symptoms.

Jeroen Tas: The microbiome I think it's a lot of research is going in there to really look at how your gut works and what the impact is on your health. If you have inflammation and you're predisposed, then that can trigger disease.

Jeroen Tas: So, the better you understand it, the better you can deal with it. You also mentioned some of the immunotherapies that are going on first in cancer. But I think it will transpose to diseases like type one diabetes as well where researchers now are using CRISPR, the DNA manipulation techniques, if you will, to reprogram your immune system to either attack a cancer or stop attacking a pancreas, which happens with type one diabetes.

Jeroen Tas: So, using your own immune system, programming your own immune system to deal with some of those diseases. I cannot say that it all will be there in the next couple of years. But there is a lot of promising research going on and a lot of it is actually also backed up by artificial intelligence because we as humans beings are usually complex and emerging and everything influences everything.

Jeroen Tas: So, we start finding patterns that we'd never seen before. Now, we may not be able to explain everything. I'll give you an example. We did research on predicting cranial pressure, that's the pressure between your skull and your brain and the fluid there, which is a strong indicator for some neuro diseases.

Jeroen Tas: In order to measure that you have to drill a hole in the skull and physically measure it. So we've taken millions of ICU records combined with electronic medical records. And from that we could quite accurately predict what the cranial pressure was, the gold standard being obviously the physical pressure measurement. We just couldn't explain why.

Jeroen Tas: So we find patterns in the data that are highly predictive but there may be so many factors at play that it's hard to have a coherent medical theory. But we see it in the data and the data is consistently predictive, and I think we're going to see more and more of that and obviously we need to find a way to assess whether that can actually be used for medical practice if we don't have the scientific theory behind it.

Ron Barshop: I'm going to give you a couple of examples of AI being used here in America that is very exciting. From a couple of our past guest we had recently, Crystal Icenhour is the CEO of Aperionics and she had a question in medical school why are neurological diseases triggered and autoimmune disease triggered out of nowhere? It can't be out of nowhere. Something has to be in the body triggering it, an inflammation, an infection of some kind.

Ron Barshop: So she created an AI based DNA monitoring of what the gut should look like, what the proper pathogen should look like in your body. She can detect with her blood test, urine test, or saliva test if your pathogens are correctly balanced and based on their DNA profiles or whether something is out of whack. So she can find an infection in the body much quicker that might lead to Parkinson's or other neurological diseases or other autoimmune diseases.

Ron Barshop: So, very exciting stuff going on with the diagnostic side with just a simple blood test or urine test.

Jeroen Tas: Yeah. I think that will continue to increase. But I think these are only perspectives because I think the whole is really complex.

Jeroen Tas: That's for instance why we're looking at the idea of the digital twin is that a blood test, an ultrasound, an EMH, your medical records, your vital signs it all creates a set of perspectives that together may be an approximation of what's going on, what may trigger disease, what influences disease.

Jeroen Tas: I think the more holistic we start looking at it, I think the more insights we'll glean. These will be aspects of it as well. As I said, proteomics is very promising, you know what we can ... And you can glean that from a blood test.

Jeroen Tas: But if you look at what we're seeing on images and what we see in genomics, what we even can glean from progressive interpretation of vital signs, what we can see in behavior. There are many applications of AI that can detect in the tremor of a voice whether you have a disease or not.

Jeroen Tas: So, but these will be aspects and collectively and that we maybe overlapping diagnostic capabilities. But I think when you put them together it's only then that you get to review just like a self-driving car. It's not just the GPS, it's the camera, it's the lighter, it's a radar, it's motion sensors, it's digital maps, it's GPS, it's all these things together that give you a pretty good feel of the real world so that the car can make its decisions.

Ron Barshop: I really appreciate your ability to bring these promise on the ground and tell us exactly how this is going to change our lives in the coming years. I'm going to tell you about one other guest that you'll be extremely interested in because of the strong imaging footprint that Philips has.

Ron Barshop: Ron Vianu is the CEO and founder of a company called Covera Health. Covera determined to everybody's surprise that 40% of all radiology reads are misread. What he learned through a deeper analysis is that most radiologists are really specialists, they just don't announce it. They're really strong in a narrow niche, just like a specialist in medical care.

Ron Barshop: So he created an AI based solution that helps the radiologist actually determine where they should really be focusing, where their center of gravity should be instead of focusing as a generalist where they should be paying attention. And has almost a rating system and a retraining system to make sure the radiologist is aware of that and the radiologists are embracing this.

Jeroen Tas: This makes total sense obviously. Of course we all know that the more you do a certain domain, the better you get at it. That specifically applies to healthcare. If you're a neural radiologist, there's enough there to spend a lifetime on it.

Ron Barshop: Absolutely. Well there is a final question I'm going to ask to make sure we're within our timelines with you. And if you can fly a banner over the world and give a single message to the world of hope for healthcare, what would that look like?

Jeroen Tas: My message would be that we will be true technology and of course the visionary healthcare leaders. We will be able to create way better outcomes for everybody. We will allow us to live healthier lives and ultimately we will get to a system that's not increasingly inflating the cost of care while the outcomes go the other way.

Jeroen Tas: I definitely believe that we're at an inflection point where the curve will start bending the other way.

Ron Barshop: Thank you for listening. You want to shake things up? There's two things you can do for us. One, go to primarycarecures.com for show notes and links to our guests. Number two, help us spotlight what's working in primary care by listening in iTunes or wherever you get your podcasts and subscribing and leave us a review. It helps our megaphone more than you know. Until next episode.